

Appendix D

Supporting Data

2009 PLOO Stations

Macrobenthic Communities

Appendix D.1

All taxa composing cluster groups A–G from the 2009 surveys of PLOO benthic stations. Data are expressed as mean abundance per sample (no./0.1 m²) for each group. Number of station/survey entities per cluster group shown in parentheses.

Species/Taxa	Phyla	Cluster Group						
		A (2)	B (1)	C (3)	D (1)	E (3)	F (1)	G (23)
<i>Acanthoptilum</i> sp	Cnidaria					0.2		0.8
<i>Acila castrensis</i>	Mollusca							<0.1
<i>Acoetes pacifica</i>	Annelida							0.1
<i>Acteocina cerealis</i>	Mollusca	0.3	5.5	0.2	1.5	0.5	0.5	1.3
<i>Acteon traskii</i>	Mollusca			0.3				
Actiniaria	Cnidaria			0.2		0.2		
<i>Adontorhina cyclia</i>	Mollusca	1.3	1.0	5.8	35.0	0.2	6.0	5.7
<i>Aglaja ocelligera</i>	Mollusca		0.5	0.3				
<i>Aglaophamus verrilli</i>	Annelida	0.3		1.0	0.5	0.7		0.3
<i>Agnezia septentrionalis</i>	Chordata			0.5				
<i>Alvania rosana</i>	Mollusca	0.3	3.5	0.2		0.2	0.5	0.6
<i>Amaeana occidentalis</i>	Annelida	0.3	1.5	1.0		0.5	0.5	0.2
<i>Amage anops</i>	Annelida			0.3	0.5			0.2
<i>Americhelidium shoemakeri</i>	Arthropoda						0.5	0.1
<i>Americhelidium</i> sp SD4	Arthropoda		0.5					0.1
<i>Ampelisca agassizi</i>	Arthropoda					0.3		<0.1
<i>Ampelisca brevisimulata</i>	Arthropoda			1.7	2.0	0.5	0.5	1.1
<i>Ampelisca careyi</i>	Arthropoda	5.8	0.5	3.8	0.5	1.8	5.0	2.5
<i>Ampelisca</i> cf <i>brevisimulata</i>	Arthropoda	0.5	1.5	0.2	0.5	0.7		0.4
<i>Ampelisca cristata cristata</i>	Arthropoda							0.2
<i>Ampelisca cristata microdentata</i>	Arthropoda							0.1
<i>Ampelisca hancocki</i>	Arthropoda	0.8	0.5	1.5	1.0	0.5		1.7
<i>Ampelisca indentata</i>	Arthropoda			0.7		0.2		<0.1
<i>Ampelisca pacifica</i>	Arthropoda	2.0	2.0	4.2	5.5	3.7	2.0	4.2
<i>Ampelisca pugetica</i>	Arthropoda	2.8	0.5	3.8	0.5	1.5	3.5	1.4
<i>Ampelisca romigi</i>	Arthropoda			1.7			1.5	<0.1
<i>Ampelisca</i> sp	Arthropoda			0.2	0.5	0.2		0.4
<i>Ampharete finmarchica</i>	Annelida	0.3	0.5	1.3		0.2		0.4
<i>Ampharete labrops</i>	Annelida			0.2				<0.1
<i>Ampharete</i> sp	Annelida	0.3				0.2		<0.1
<i>Ampharetidae</i> sp SD1	Annelida		0.5	0.2		0.3		0.2
Ampharetidae	Annelida	0.3		0.2				
<i>Amphichondrius granulatus</i>	Echinodermata			1.3		0.5		0.3
<i>Amphicteis mucronata</i>	Annelida	0.3						<0.1
<i>Amphicteis scaphobranchiata</i>	Annelida	1.0	1.0	1.5	0.5	0.7		0.9
<i>Amphicteis</i> sp	Annelida							<0.1
<i>Amphiodia digitata</i>	Echinodermata	10.0		7.8		0.5	4.0	0.3
<i>Amphiodia</i> sp	Echinodermata	3.3		5.3	1.0	5.2	2.0	3.4

Appendix D.1 *continued*

Species/Taxa	Phyla	Cluster Group						
		A	B	C	D	E	F	G
<i>Amphiodia urtica</i>	Echinodermata	1.5		14.5	71.5	71.0	2.5	25.0
<i>Amphioplus</i> sp	Echinodermata	0.5						
<i>Amphipholis squamata</i>	Echinodermata		1.5	0.2				
<i>Amphissa bicolor</i>	Mollusca						0.1	
<i>Amphissa undata</i>	Mollusca	1.0	1.0	0.2			<0.1	
<i>Amphiura arcystata</i>	Echinodermata			0.3	1.0	1.2		0.2
Amphiuridae	Echinodermata	1.8		2.8	2.0	1.2	1.0	0.5
<i>Amygdalum politum</i>	Mollusca						<0.1	
<i>Anarthon</i> sp SD1	Arthropoda	0.3						
Anarthruridae	Arthropoda			0.2			<0.1	
<i>Anemonactis</i> sp	Cnidaria			0.2				
<i>Anobothrus gracilis</i>	Annelida	0.3		0.8	0.5	0.3	1.0	0.7
<i>Anonyx lilljeborgi</i>	Arthropoda	0.8			0.5	0.3		0.2
<i>Aroides</i> sp A	Arthropoda		9.0					
<i>Aroides</i> sp	Arthropoda			0.2				
<i>Aphelochaeta glandaria</i> complex	Annelida	13.8	13.0	2.7	0.5	0.3	9.0	6.9
<i>Aphelochaeta monilaris</i>	Annelida	1.0	1.5	0.2	0.5	3.5	11.5	2.8
<i>Aphelochaeta petersenae</i>	Annelida						0.5	
<i>Aphelochaeta phillipsi</i>	Annelida			0.2			0.5	
<i>Aphelochaeta</i> sp LA1	Annelida	0.8		0.8		0.8	1.0	0.3
<i>Aphelochaeta</i> sp SD13	Annelida	4.3	1.0	12.3			4.0	1.2
<i>Aphelochaeta</i> sp	Annelida					0.8		0.2
<i>Aphelochaeta tigrina</i>	Annelida	1.5		1.0		0.2	2.0	0.2
<i>Aphelochaeta williamsae</i>	Annelida						1.0	<0.1
<i>Aphrodita</i> sp	Annelida	0.3						
<i>Arachnanthus</i> sp A	Cnidaria					0.3		
<i>Araphura brevioria</i>	Arthropoda	0.3		0.3			0.5	0.8
<i>Araphura cuspirostris</i>	Arthropoda			0.2				0.1
<i>Araphura</i> sp SD1	Arthropoda							0.5
<i>Argissa hamatipes</i>	Arthropoda			0.2		0.2		<0.1
<i>Aricidea (Acmina) catherinae</i>	Annelida	13.0	18.0	20.3		2.3	1.0	10.7
<i>Aricidea (Acmina) lopezi</i>	Annelida	4.3		0.8		2.5	5.5	5.0
<i>Aricidea (Acmina) rubra</i>	Annelida			0.3				<0.1
<i>Aricidea (Acmina) simplex</i>	Annelida	1.3	3.0	1.3	0.5	3.3	0.5	1.9
<i>Aricidea (Acmina)</i> sp	Annelida							<0.1
<i>Aricidea (Allia) antennata</i>	Annelida	1.0		0.3		0.2	0.5	0.7
<i>Aricidea (Allia) hartleyi</i>	Annelida			0.5				0.2
<i>Aricidea (Allia)</i> sp A	Annelida							<0.1
<i>Aricidea (Allia)</i> sp	Annelida	0.8	1.0	3.7	1.0	1.0		3.8
<i>Aricidea (Aricidea) wassi</i>	Annelida	0.8				0.2		0.3
<i>Artacama coniferi</i>	Annelida			0.3		0.3		0.1
<i>Artacamella hancocki</i>	Annelida	0.3		2.0		0.7	1.0	0.2

Appendix D.1 *continued*

Species/Taxa	Phyla	Cluster Group					
		A	B	C	D	E	F
<i>Aruga holmesi</i>	Arthropoda			0.2			
<i>Aruga oculata</i>	Arthropoda		0.5	0.2		0.3	0.2
<i>Asabellides lineata</i>	Annelida	0.3		0.5			<0.1
Asidiacea	Chordata			0.5			<0.1
Asteroidea	Echinodermata	0.3		0.2	0.5		<0.1
<i>Astropecten</i> sp	Echinodermata						<0.1
<i>Axinopsida serricata</i>	Mollusca	2.5	4.5	8.5	35.0	1.3	34.5
<i>Balanoglossus</i> sp	Chordata			0.2		0.2	0.1
<i>Bathymedon pumilus</i>	Arthropoda			0.3		0.3	0.4
Bivalvia	Mollusca					0.2	<0.1
<i>Brada pluribranchiata</i>	Annelida				1.0		<0.1
<i>Brada villosa</i>	Annelida				0.5		<0.1
<i>Bullomorpha</i> sp A	Mollusca				0.5		
<i>Byblis millsii</i>	Arthropoda	0.5		0.8	1.0	0.2	0.4
<i>Byblis</i> sp	Arthropoda						<0.1
<i>Byblis veleronis</i>	Arthropoda			0.2			<0.1
<i>Caecognathia crenulatifrons</i>	Arthropoda	3.3	3.0	2.8		1.8	1.0
<i>Campylaspis canaliculata</i>	Arthropoda						0.2
<i>Campylaspis rubromaculata</i>	Arthropoda				0.3		0.1
<i>Capitella teleta</i>	Annelida		62.0				1.8
Capitellidae	Annelida						<0.1
<i>Caprella mendax</i>	Arthropoda			0.2		0.7	
<i>Cardiomya pectinata</i>	Mollusca					0.2	
<i>Cardiomya planetica</i>	Mollusca						<0.1
Caridea	Arthropoda						<0.1
<i>Carinoma mutabilis</i>	Nemertea			0.2			0.1
<i>Cephalophoxoides homilis</i>	Arthropoda			0.2			0.1
<i>Cerebratulus californiensis</i>	Nemertea	0.3				0.5	<0.1
<i>Chaetoderma marinelli</i>	Mollusca			0.2			<0.1
<i>Chaetoderma pacificum</i>	Mollusca			0.2			
<i>Chaetozone hartmanae</i>	Annelida	1.8	7.0	4.5	1.0	5.3	9.0
<i>Chaetozone</i> sp SD1	Annelida	3.8		1.2		0.8	4.5
<i>Chaetozone</i> sp SD2	Annelida	1.5					<0.1
<i>Chaetozone</i> sp SD3	Annelida	1.0					<0.1
<i>Chaetozone</i> sp SD4	Annelida	1.3					<0.1
<i>Chaetozone</i> sp SD5	Annelida	2.5					
<i>Chaetozone</i> sp	Annelida	2.8		0.2		0.5	0.1
<i>Chaetozone spinosa</i>	Annelida			0.7			<0.1
<i>Chauliopleona dentata</i>	Arthropoda	1.0		0.3		0.7	0.5
<i>Chiridota</i> sp	Echinodermata		0.5	0.2	1.0	0.5	0.5
<i>Chloeia pinnata</i>	Annelida	3.0	8.0	0.2			0.6
<i>Chone albocincta</i>	Annelida						0.2

Appendix D.1 *continued*

Species/Taxa	Phyla	Cluster Group					
		A	B	C	D	E	F
<i>Chone paramollis</i>	Annelida						0.1
<i>Chone</i> sp B	Annelida			0.2			0.1
<i>Chone</i> sp	Annelida			0.2			
<i>Chone trilineata</i>	Annelida	2.5	3.0	4.7		1.5	2.5
<i>Cirratulidae</i>	Annelida		0.5				0.3
<i>Cirratulus</i> sp	Annelida						0.1
<i>Cirrophorus furcatus</i>	Annelida			0.2			
<i>Clymenura gracilis</i>	Annelida	0.3	0.5	1.2	4.5	2.7	0.5
<i>Compressidens stearnsii</i>	Mollusca	0.5	0.5	1.8	1.5	0.7	0.5
<i>Compsomyax subdiaphana</i>	Mollusca						<0.1
<i>Corophiida</i>	Arthropoda						<0.1
<i>Cossura candida</i>	Annelida			1.7		0.3	0.4
<i>Cossura</i> sp A	Annelida			1.2		0.7	0.2
<i>Cossura</i> sp	Annelida	0.3				0.2	<0.1
<i>Cumanotus fernaldi</i>	Mollusca		2.0				
<i>Cupidaria parapodema</i>	Mollusca				0.5	0.2	0.1
<i>Cyclocardia ventricosa</i>	Mollusca	0.5					
<i>Cyclopecten catalinensis</i>	Mollusca						<0.1
<i>Cylichna diegensis</i>	Mollusca		1.0	0.3	0.5	1.0	0.5
<i>Cylindroleberididae</i>	Arthropoda			0.2			<0.1
<i>Dactylopleustes</i> sp A	Arthropoda						<0.1
<i>Decamastus gracilis</i>	Annelida	5.0	8.0	5.3	0.5	0.2	6.0
<i>Deflexilodes norvegicus</i>	Arthropoda	0.5	1.5	0.3	0.5	0.8	1.0
<i>Deilocerus decorus</i>	Arthropoda			0.3			
<i>Dentalium vallicolens</i>	Mollusca			0.2			
<i>Desdimelita desdichada</i>	Arthropoda		0.5				
<i>Diaphorodoris lirulatocauda</i>	Mollusca		0.5				
<i>Diastylidae</i>	Arthropoda						<0.1
<i>Diastylis crenellata</i>	Arthropoda	0.8	2.5	1.3	1.5	0.7	2.0
<i>Dipolydora socialis</i>	Annelida	0.3		0.7	1.5	0.7	1.0
<i>Dipolydora</i> sp	Annelida						<0.1
<i>Dougaloplus amphacanthus</i>	Echinodermata	0.5		2.5		0.5	1.5
<i>Dougaloplus</i> sp A	Echinodermata	0.3				0.2	<0.1
<i>Dougaloplus</i> sp	Echinodermata	0.5		0.8			
<i>Drilonereis falcata</i>	Annelida					0.5	1.5
<i>Drilonereis longa</i>	Annelida			1.5			<0.1
<i>Drilonereis</i> sp	Annelida	0.3		1.0		1.2	0.1
<i>Echinoidea</i>	Echinodermata			0.2			
<i>Eclysippe trilobata</i>	Annelida	1.8		1.7		1.8	5.0
<i>Edwardsia</i> sp G	Cnidaria			0.2			1.0
<i>Edwardsiidae</i>	Cnidaria			0.2			
<i>Elasmopus</i> sp	Arthropoda						<0.1

Appendix D.1 *continued*

Species/Taxa	Phyla	Cluster Group					
		A	B	C	D	E	F
<i>Ennucula tenuis</i>	Mollusca		3.5	6.7	10.5	8.2	2.0
<i>Enopla</i>	Nemertea			0.7			
<i>Enteropneusta</i>	Chordata			0.2		0.2	0.1
<i>Epitonium hindsii</i>	Mollusca					0.5	
<i>Eranno bicirrata</i>	Annelida					0.2	<0.1
<i>Eranno lagunae</i>	Annelida		1.5			1.0	0.1
<i>Eranno</i> sp	Annelida		1.0				
<i>Eteone leptotes</i>	Annelida					0.2	
<i>Eteone pigmentata</i>	Annelida			0.3			<0.1
<i>Euchone arenae</i>	Annelida			0.5			<0.1
<i>Euchone incolor</i>	Annelida	0.3	4.0	1.7		1.8	0.5
<i>Euchone</i> sp A	Annelida					0.2	<0.1
<i>Euchone</i> sp	Annelida	0.3					0.1
<i>Euclymeninae</i> sp A	Annelida	0.3		0.7	1.0		1.2
<i>Euclymeninae</i>	Annelida	0.3	2.0	0.3		0.8	0.5
<i>Eudorella pacifica</i>	Arthropoda				0.5		0.1
<i>Eudorellopsis longirostris</i>	Arthropoda			0.5		0.5	<0.1
<i>Eulalia</i> sp SD4	Annelida						<0.1
<i>Eunice americana</i>	Annelida						0.1
<i>Euphilomedes carcharodonta</i>	Arthropoda	3.5	6.5	0.8	1.0	2.7	1.5
<i>Euphilomedes producta</i>	Arthropoda	10.3	4.5	7.0	3.5	4.0	19.0
<i>Euphysa</i> sp A	Cnidaria		0.5				
<i>Eurydice caudata</i>	Arthropoda					0.2	
<i>Exogone lourei</i>	Annelida	0.3	0.5	0.8		1.0	
<i>Eyakia robusta</i>	Arthropoda	2.8		3.2	3.0	2.2	
<i>Falcidens longus</i>	Mollusca			0.2	0.5		0.1
<i>Fauveliopsis</i> sp SD1	Annelida	10.0	0.5	0.3			
<i>Foxiphalus obtusidens</i>	Arthropoda	0.5		0.3			<0.1
<i>Foxiphalus similis</i>	Arthropoda	0.8	0.5	1.0		0.7	1.5
<i>Gammaropsis martesia</i>	Arthropoda						0.2
<i>Gammaropsis ociosa</i>	Arthropoda	0.5	2.0				<0.1
<i>Gastropteron pacificum</i>	Mollusca			0.3	0.5		0.2
<i>Gitana calitemplado</i>	Arthropoda		0.5				
<i>Glycera americana</i>	Annelida			0.2			0.1
<i>Glycera nana</i>	Annelida	1.8	6.5	2.0	2.0	3.7	2.0
<i>Glycinde armigera</i>	Annelida	1.3	0.5	0.2	1.5	1.0	1.0
<i>Goniada brunnea</i>	Annelida			0.2		0.3	0.3
<i>Goniada maculata</i>	Annelida	1.0	0.5	0.8	0.5	1.0	1.0
<i>Gymnonereis crosslandi</i>	Annelida			0.7			
<i>Halcampa decententaculata</i>	Cnidaria						0.1
<i>Halianthella</i> sp A	Cnidaria			0.2		0.2	<0.1
<i>Halicorides synopiae</i>	Arthropoda	0.8		0.7	3.0	1.5	1.0

Appendix D.1 *continued*

Species/Taxa	Phyla	Cluster Group					
		A	B	C	D	E	F
<i>Haliophasma geminatum</i>	Arthropoda	0.3	1.5	1.2		0.3	0.3
<i>Hartmanodes</i> sp	Arthropoda						<0.1
<i>Hemilamprops californicus</i>	Arthropoda						0.1
<i>Heteronemertea</i> sp SD2	Nemertea						<0.1
<i>Heteronemertea</i>	Nemertea			0.5		0.2	<0.1
<i>Heterophoxus ellisi</i>	Arthropoda		1.0	0.8	2.5		0.1
<i>Heterophoxus oculatus</i>	Arthropoda		1.0		0.5	1.2	0.5
<i>Heterophoxus</i> sp	Arthropoda		0.5	0.2			<0.1
<i>Heterospio catalinensis</i>	Annelida					0.5	0.1
<i>Hiatella arctica</i>	Mollusca			0.2			
<i>Hippomedon columbianus</i>	Arthropoda						0.1
<i>Hippomedon</i> sp A	Arthropoda	0.5		0.2		0.2	<0.1
<i>Hippomedon zetesimus</i>	Arthropoda			0.5			<0.1
<i>Hoploneurida</i> sp A	Nemertea						<0.1
<i>Huxleyia munita</i>	Mollusca	3.3	1.0	0.5		0.8	0.5
<i>Janiralata</i> sp A	Arthropoda		0.5				
<i>Janiralata</i> sp	Arthropoda		0.5				
<i>Jasmineira</i> sp B	Annelida			0.3		0.3	1.0
<i>Kurtzina beta</i>	Mollusca			1.0	0.5	0.5	0.3
<i>Lanassa venusta</i> venusta	Annelida	0.5	1.5	0.5		0.2	0.4
<i>Laonice cirrata</i>	Annelida				0.5	0.8	0.1
<i>Laonice nuchala</i>	Annelida	0.5		1.3		0.2	
<i>Leitoscoloplos</i> sp A	Annelida						0.5
<i>Leptochelia dubia</i>	Arthropoda	2.5	1.5	1.2		1.3	4.0
<i>Leptostylistis abditus</i>	Arthropoda			0.5			
<i>Leptosynapta</i> sp	Echinodermata	1.0	0.5	2.8		1.8	2.0
<i>Levinsenia gracilis</i>	Annelida			1.5	1.3	1.0	1.2
<i>Levinsenia</i> sp B	Annelida	0.5		2.7		0.7	0.3
Lineidae	Nemertea	0.3	1.0	1.0	0.5	0.2	0.5
<i>Lineus bilineatus</i>	Nemertea					0.2	0.1
<i>Lirobittium larum</i>	Mollusca	9.3					2.5
<i>Listriella goleta</i>	Arthropoda			0.5			0.1
<i>Lucinoma annulatum</i>	Mollusca	0.5	3.0		1.0	0.3	0.5
Lumbrineridae group III	Annelida				1.0	0.5	0.5
<i>Lumbrineris cruzensis</i>	Annelida	1.3	13.5	3.0	1.5	3.7	0.5
<i>Lumbrineris latreilli</i>	Annelida			0.2			0.6
<i>Lumbrineris limicola</i>	Annelida						0.3
<i>Lumbrineris lingulata</i>	Annelida	1.0		0.3			0.1
<i>Lumbrineris</i> sp group I	Annelida	0.5	11.0	4.3	3.0	5.7	4.5
<i>Lumbrineris</i> sp group II	Annelida			3.2			0.1
<i>Lysippe</i> sp A	Annelida	2.8	0.5	8.0	1.0	2.8	4.5
<i>Lysippe</i> sp B	Annelida	1.3	1.5	2.3		1.2	2.0

Appendix D.1 *continued*

Species/Taxa	Phyla	Cluster Group					
		A	B	C	D	E	F
<i>Lytechinus pictus</i>	Echinodermata			0.3		0.3	0.2
<i>Macoma carlottensis</i>	Mollusca						0.2
<i>Macoma nasuta</i>	Mollusca						<0.1
<i>Macoma</i> sp	Mollusca		0.5	0.2		0.2	0.5
<i>Magelona berkeleyi</i>	Annelida	0.8					
<i>Magelona</i> sp B	Annelida	0.5					
<i>Malacoboceras indicus</i>	Annelida			0.2			<0.1
<i>Maldane sarsi</i>	Annelida	0.5	1.5	0.3	0.5	2.2	1.0
<i>Maldanidae</i>	Annelida		6.0	1.2		1.3	0.5
<i>Malmgreniella baschi</i>	Annelida			0.2			<0.1
<i>Malmgreniella sanpedroensis</i>	Annelida		0.5	0.5		0.2	1.0
<i>Malmgreniella scriptoria</i>	Annelida						<0.1
<i>Malmgreniella</i> sp A	Annelida						<0.1
<i>Malmgreniella</i> sp	Annelida	0.8		1.0	1.5	1.2	0.5
<i>Mayerella banksia</i>	Arthropoda	1.0		0.8		0.2	<0.1
<i>Mediomastus</i> sp	Annelida	6.3	24.5	39.2	9.0	10.8	6.5
<i>Megalomma pigmentum</i>	Annelida						0.5
<i>Megalomma</i> sp	Annelida	0.3		0.2			
<i>Megalomma splendida</i>	Annelida						<0.1
<i>Megasurcula carpenteriana</i>	Mollusca		1.0			0.2	<0.1
<i>Melanella rosa</i>	Mollusca						<0.1
<i>Melinna oculata</i>	Annelida						0.1
<i>Melitidae</i>	Arthropoda		0.5				
<i>Melphisana bola</i> complex	Arthropoda					0.2	<0.1
<i>Mesolamprops bispinosus</i>	Arthropoda						<0.1
<i>Metaphoxus frequens</i>	Arthropoda	0.3		0.2	0.5		<0.1
<i>Micranellum crebricinctum</i>	Mollusca	9.5		0.3			
<i>Micrura alaskensis</i>	Nemertea						<0.1
<i>Micrura</i> sp	Nemertea						<0.1
<i>Molgula napiformis</i>	Chordata			0.5		0.5	0.3
<i>Molgula pugetensis</i>	Chordata			0.2		0.7	0.1
<i>Molgula regularis</i>	Chordata				0.5		
<i>Molgula</i> sp	Chordata		0.5				0.1
<i>Monoculodes emarginatus</i>	Arthropoda	2.8	1.0	2.0		1.2	1.5
<i>Monostyliferoidea</i>	Nemertea	0.3					<0.1
<i>Monticellina cryptica</i>	Annelida			3.0	3.0	0.8	3.0
<i>Monticellina siblini</i>	Annelida	3.8		5.7		2.3	2.0
<i>Monticellina</i> sp SD7	Annelida			1.0			0.5
<i>Monticellina</i> sp	Annelida					0.3	
<i>Monticellina tessellata</i>	Annelida	0.3		0.2		0.2	0.5
<i>Mooreonuphis exigua</i>	Annelida	1.5					0.1
<i>Mooreonuphis nebulosa</i>	Annelida			0.3			

Appendix D.1 *continued*

Species/Taxa	Phyla	Cluster Group					
		A	B	C	D	E	F
<i>Mooreonuphis segmentispadix</i>	Annelida	0.3					
<i>Mooreonuphis</i> sp SD1	Annelida	0.3		0.2			0.5
<i>Mooreonuphis</i> sp	Annelida	1.0		0.2			
<i>Myriochele gracilis</i>	Annelida			0.7	0.5	1.2	1.5
<i>Myriochele striolata</i>	Annelida						<0.1
<i>Myriowenia californiensis</i>	Annelida	0.3					
<i>Myxicola</i> sp	Annelida			0.2			
Nematoda	Nematoda						<0.1
Nemertea	Nemertea						<0.1
Nassariidae	Mollusca						<0.1
<i>Neaeromya compressa</i>	Mollusca						0.2
<i>Neastacilla californica</i>	Arthropoda	4.0		0.3			<0.1
<i>Nebalia pugettensis</i> complex	Arthropoda			0.2			
<i>Nemocardium centifilosum</i>	Mollusca			0.2			<0.1
<i>Neocrangon zacae</i>	Arthropoda						<0.1
<i>Neosabellaria cementarium</i>	Annelida	1.0					
<i>Nephtys caecoides</i>	Annelida					0.2	0.3
<i>Nephtys cornuta</i>	Annelida					0.2	<0.1
<i>Nephtys ferruginea</i>	Annelida	1.8	1.5	1.8	1.0	0.3	4.5
<i>Nereiphylla</i> sp 2	Annelida			0.2			0.1
<i>Nereis</i> sp A	Annelida						0.1
<i>Nicippe tumida</i>	Arthropoda	0.5		1.5	0.5	0.3	0.5
<i>Notocirrus californiensis</i>	Annelida					0.3	0.1
<i>Notomastus latericeus</i>	Annelida					0.2	0.5
<i>Notomastus magnus</i>	Annelida						<0.1
<i>Notomastus</i> sp A	Annelida	0.8	12.5	1.2		1.7	1.0
<i>Nuculana hamata</i>	Mollusca		2.5	0.2			<0.1
<i>Nuculana</i> sp A	Mollusca	0.5	1.5	0.7		0.2	0.9
<i>Odostomia</i> sp	Mollusca					0.3	0.3
Oedicerotidae	Arthropoda						<0.1
<i>Oerstedia dorsalis</i>	Nemertea		0.5	0.2			
Onuphidae	Annelida	0.3					0.5
<i>Onuphis affinis</i>	Annelida	0.3					
<i>Onuphis iridescens</i>	Annelida						<0.1
<i>Onuphis</i> sp A	Annelida			0.5			0.2
<i>Onuphis</i> sp	Annelida	1.5		0.5			0.2
<i>Ophelina acuminata</i>	Annelida	0.8	0.5				
<i>Ophelina</i> sp SD1	Annelida					0.5	
<i>Ophiopholis bakeri</i>	Echinodermata						<0.1
<i>Ophiura luetkenii</i>	Echinodermata	0.5		0.3			0.1
<i>Ophiuroconis bispinosa</i>	Echinodermata			1.3	0.5		
Ophiuroidea	Echinodermata			0.5		0.5	0.1

Appendix D.1 *continued*

Species/Taxa	Phyla	Cluster Group					
		A	B	C	D	E	F
<i>Orchomenella decipiens</i>	Arthropoda						<0.1
<i>Orchomenella pinguis</i>	Arthropoda			0.2			<0.1
<i>Owenia collaris</i>	Annelida						<0.1
<i>Pachynus barnardi</i>	Arthropoda						<0.1
<i>Paguristes turgidus</i>	Arthropoda	0.5					
<i>Palaeonemertea</i>	Nemertea		0.5				<0.1
<i>Pandora bilirata</i>	Mollusca			0.2	0.5	0.2	0.2
<i>Paradiopatra parva</i>	Annelida	1.8	1.0	0.8	1.0	1.7	6.0
<i>Paradoneis</i> sp	Annelida						<0.1
<i>Paramage scutata</i>	Annelida		0.5				0.5
<i>Paranaitis polynoides</i>	Annelida	0.3					
<i>Paranaitis</i> sp SD1	Annelida						<0.1
<i>Parandalia fauveli</i>	Annelida			0.2			
<i>Paranemertes californica</i>	Nemertea		0.5	0.3		0.2	0.2
<i>Paraonidae</i>	Annelida	1.3	0.5	0.2		0.2	0.2
<i>Paraprionospio alata</i>	Annelida			0.2		0.2	2.0
<i>Parvilucina tenuisculpta</i>	Mollusca	2.8	4.0	0.3	0.5		6.0
<i>Pectinaria californiensis</i>	Annelida		1.0	1.5	1.0	0.8	2.0
<i>Pentamera populifera</i>	Echinodermata			0.2			0.5
<i>Petaloclymene pacifica</i>	Annelida						1.5
<i>Phascolion</i> sp A	Sipuncula	0.8	0.5	0.8		0.7	0.5
<i>Pherusa negligens</i>	Annelida	0.3					<0.1
<i>Pherusa neopapillata</i>	Annelida	0.3		0.5			<0.1
<i>Pherusa</i> sp	Annelida	0.3					
<i>Philine auriformis</i>	Mollusca						<0.1
<i>Philine californica</i>	Mollusca						<0.1
<i>Phisidia sanctaemariae</i>	Annelida	1.5	3.5	3.3	1.5	2.8	2.5
<i>Pholoe glabra</i>	Annelida	1.8	1.0	1.7	4.0	0.7	1.5
<i>Pholoides asperus</i>	Annelida					0.3	<0.1
<i>Phoronis</i> sp	Phorona		0.5	0.3		0.3	0.1
<i>Photis bifurcata</i>	Arthropoda		2.0				0.2
<i>Photis brevipes</i>	Arthropoda		2.5				
<i>Photis californica</i>	Arthropoda		28.0	1.5		0.5	
<i>Photis lacia</i>	Arthropoda	3.0	0.5	0.2		0.8	0.2
<i>Photis parvidons</i>	Arthropoda				1.0	0.3	0.1
<i>Photis</i> sp C	Arthropoda	0.3	0.5	0.2		0.2	0.4
<i>Photis</i> sp	Arthropoda		1.5				
<i>Phoxocephalidae</i>	Arthropoda						0.1
<i>Phyllodoce cuspidata</i>	Annelida			0.2	0.5		<0.1
<i>Phyllodoce groenlandica</i>	Annelida	0.5		0.5		0.2	0.1
<i>Phyllodoce hartmanae</i>	Annelida		1.5			0.2	0.5
<i>Phyllodoce longipes</i>	Annelida		0.5	0.3			<0.1

Appendix D.1 *continued*

Species/Taxa	Phyla	Cluster Group					
		A	B	C	D	E	F
<i>Phyllodoce medipapillata</i>	Annelida		0.5				
<i>Pinnixa occidentalis</i> complex	Arthropoda			0.5	0.5	0.5	0.1
<i>Pinnixa</i> sp	Arthropoda				1.5		0.1
<i>Pionosyllis articulata</i>	Annelida					0.2	0.1
<i>Piromis</i> sp A	Annelida					0.2	
<i>Pista brevibranchiata</i>	Annelida		1.5				
<i>Pista estevanica</i>	Annelida		1.0	0.5		0.2	2.0
<i>Pista moorei</i>	Annelida	0.3					<0.1
<i>Pista</i> sp	Annelida			0.2			0.5
<i>Pista wui</i>	Annelida			1.2		0.5	0.2
<i>Platymera gaudichaudii</i>	Arthropoda						<0.1
<i>Pleurogonium californiense</i>	Arthropoda						<0.1
<i>Podarkeopsis glabrus</i>	Annelida			0.2	1.0	0.2	0.5
<i>Polycirrus californicus</i>	Annelida						<0.1
<i>Polycirrus</i> sp A	Annelida	1.5		4.5		2.8	2.3
<i>Polycirrus</i> sp I	Annelida	14.0	31.5	6.7	1.0	8.8	38.0
<i>Polycirrus</i> sp OC1	Annelida					0.5	0.1
<i>Polycirrus</i> sp	Annelida			0.3			
<i>Polyschides quadrifissatus</i>	Mollusca	1.5		0.5	1.5	0.5	0.7
<i>Prachynella lodo</i>	Arthropoda					0.3	<0.1
<i>Praxillella pacifica</i>	Annelida	0.8	6.0	1.2	0.5	0.8	1.0
<i>Prionospio (Minuspio) lighti</i>	Annelida	0.3		0.5	0.5	0.2	0.2
<i>Prionospio (Prionospio) dubia</i>	Annelida	4.8	3.5	6.3	2.5	6.5	6.5
<i>Prionospio (Prionospio) jubata</i>	Annelida	10.3	2.5	5.2	1.0	5.8	2.5
<i>Procampylaspis caenosa</i>	Arthropoda	0.3		0.8		0.3	<0.1
<i>Proclea</i> sp A	Annelida	0.5		0.3	1.5	2.2	1.5
<i>Protocirrineris</i> sp A	Annelida	0.3				0.2	
<i>Protomediea articulata</i> complex	Arthropoda			0.2	0.5		1.0
<i>Rhachotropis</i> sp A	Arthropoda	0.3		0.3	1.5	1.0	0.3
<i>Rhepoxyinius bicuspidatus</i>	Arthropoda	0.3	1.0	1.5	3.0	3.3	1.0
<i>Rhepoxyinius menziesi</i>	Arthropoda			0.5			0.5
<i>Rhepoxyinius</i> sp	Arthropoda						<0.1
<i>Rhepoxyinius stenodes</i>	Arthropoda						<0.1
<i>Rhodine bitorquata</i>	Annelida	0.8	1.0	0.5	0.5	1.3	1.0
<i>Rictaxis punctocaelatus</i>	Mollusca	1.3	0.5	0.3			1.0
<i>Rochefortia tumida</i>	Mollusca			0.5	0.7	2.0	0.3
Sabellidae	Annelida			0.5			<0.1
<i>Samytha californiensis</i>	Annelida					0.2	0.1
<i>Saxicavella pacifica</i>	Mollusca						0.1
<i>Scalibregma californicum</i>	Annelida	0.3		0.7		0.3	0.5
<i>Scleroconcha trituberculata</i>	Arthropoda			0.2			<0.1
<i>Scolelepis (Parascolelepis)</i> sp SD1	Annelida					0.2	

Appendix D.1 *continued*

Species/Taxa	Phyla	Cluster Group					
		A	B	C	D	E	F
<i>Scoletoma tetraura</i> complex	Annelida			1.0	1.5	0.3	0.2
<i>Scoloplos armiger</i> complex	Annelida	5.5	1.5	0.7		0.8	4.0
<i>Scoloplos</i> sp	Annelida	0.3		0.5			
<i>Scoloura phillipsi</i>	Arthropoda	0.8				1.0	<0.1
<i>Sigalion spinosus</i>	Annelida	0.5				0.5	0.5
<i>Sige</i> sp A	Annelida						<0.1
<i>Sige</i> sp	Annelida						<0.1
<i>Sinum scopulosum</i>	Mollusca			0.3			<0.1
<i>Siphonolabrum californiensis</i>	Arthropoda						0.5
<i>Solamen columbianum</i>	Mollusca	0.5				1.5	<0.1
<i>Solariella peramabilis</i>	Mollusca	0.8		0.2			0.1
<i>Solemya pervernica</i> osa	Mollusca						0.1
<i>Sosane occidentalis</i>	Annelida		0.5	0.2			0.1
Sphaeromatidae	Arthropoda			0.2			<0.1
<i>Spio filicornis</i>	Annelida	0.3	0.5	0.2		0.5	0.5
<i>Spio maculata</i>	Annelida	0.3					0.1
<i>Spiochaetopterus costarum</i> complex	Annelida						<0.1
<i>Spiophanes berkeleyorum</i>	Annelida	0.5	1.0	1.0	3.5	0.5	8.5
<i>Spiophanes duplex</i>	Annelida	0.3		0.5		0.3	1.0
<i>Spiophanes kimbballi</i>	Annelida	0.3	0.5		0.5	0.2	0.5
<i>Spiophanes norrisi</i>	Annelida	0.3		0.2		0.3	0.2
<i>Stenothoe frecanda</i>	Arthropoda		0.5				
<i>Stereobalanus</i> sp	Chordata			0.5	4.0	0.5	0.1
<i>Sternaspis fessor</i>	Annelida	1.3	6.0	3.3	4.5	3.0	7.0
<i>Sthenelais tertiglabra</i>	Annelida	2.5		0.8	1.0	0.5	13.5
<i>Sthenelanella uniformis</i>	Annelida		0.5	0.2	0.5	0.3	0.5
<i>Styela</i> sp	Chordata		0.5				
<i>Stylatula</i> sp	Cnidaria					0.2	<0.1
<i>Subadyte mexicana</i>	Annelida			0.3			
<i>Synidotea magnifica</i>	Arthropoda			0.2			
<i>Tanaella propinquus</i>	Arthropoda			0.7	0.5	1.8	1.8
Tanaidacea	Arthropoda						0.2
<i>Tanaopsis cadieni</i>	Arthropoda			1.0		0.5	1.5
<i>Tellina cadieni</i>	Mollusca		0.5	0.5		0.5	0.5
<i>Tellina carpenteri</i>	Mollusca	4.0	4.5	4.0	1.0	0.8	6.0
Tellinidae	Mollusca						<0.1
<i>Tenonia priops</i>	Annelida	0.3	1.0				<0.1
Terebellidae	Annelida						<0.1
<i>Terebellides californica</i>	Annelida	1.8	2.0	4.5	3.0	2.7	4.5
<i>Terebellides reishi</i>	Annelida				0.5		0.5
<i>Terebellides</i> sp Type D	Annelida			0.7		1.2	0.5
<i>Terebellides</i> sp	Annelida			0.2			<0.1

Appendix D.1 *continued*

Species/Taxa	Phyla	Cluster Group					
		A	B	C	D	E	F
<i>Tetrastremma candidum</i>	Nemertea			0.3			
<i>Thelepus hamatus</i>	Annelida		0.5				
<i>Thracia trapezoides</i>	Mollusca			0.2	0.5		<0.1
<i>Thyasira flexuosa</i>	Mollusca						0.1
<i>Thysanocardia nigra</i>	Sipuncula			0.2			<0.1
<i>Travisia brevis</i>	Annelida	0.3	0.5	1.0	4.5	4.3	0.5
<i>Tritella pilimana</i>	Arthropoda		0.5				2.4
<i>Tubulanus cingulatus</i>	Nemertea			0.5		0.5	0.2
<i>Tubulanus polymorphus</i>	Nemertea						<0.1
<i>Tubulanus</i> sp A	Nemertea						<0.1
<i>Tubulanus</i> sp	Nemertea			0.3			<0.1
<i>Turbanilla</i> sp SD1	Mollusca					0.2	<0.1
<i>Turbanilla</i> sp SD5	Mollusca		0.5				0.2
<i>Turbanilla</i> sp	Mollusca	0.3	1.0				<0.1
<i>Typhlotanais</i> sp	Arthropoda						<0.1
<i>Typhlotanais williamsi</i>	Arthropoda						0.1
<i>Typosyllis heterochaeta</i>	Annelida		1.0	0.3		0.7	0.2
<i>Urothoe elegans</i> complex	Arthropoda	6.0		1.0		0.2	0.5
Virgulariidae	Cnidaria						<0.1
<i>Volvulella cylindrica</i>	Mollusca			1.0	0.3		0.2
<i>Volvulella panamica</i>	Mollusca						<0.1
<i>Volvulella</i> sp	Mollusca						<0.1
<i>Westwoodilla tone</i>	Arthropoda	1.3		0.5	0.5	0.3	1.5
<i>Xenoleberis californica</i>	Arthropoda		0.5	0.7			0.5
<i>Zygeupolia rubens</i>	Nemertea			0.5			0.1